LEARNING DISABILITIES

FOCAL CEREBRAL DYSFUNCTION AND LEARNING DISABILITIES

Single photon emission tomography was used to study regional cerebral activity in 24 children with developmental learning disabilities and 15 age matched controls at the John F. Kennedy Institute, Glostrup, and Department of Neurology, Rigshospitalet, Copenhagen, Denmark. The distribution of regional cerebral activity was abnormal - low in striatal and posterior periventricular regions and high in occipital regions - in nine children with pure attention deficit and hyperactivity disorder, low in striatal and posterior ventricular areas in eight children with ADHD plus phonologic-syntactic dysphasia, and low in the left temporofrontal regions in seven children with dysphasia without hyperactive behavior. (Lou HC et al. Focal cerebral dysfunction in developmental learning disabilities. Lancet Jan 6, 1990; 335:8-11).

> COMMENT. The use of PET in children is restricted by the radiation dose and invasive procedure. The smaller dose of radiation associated with SPET was considered less invasive and hazardous. The MRI avoids the risk of radiation side effects and has illuminated structural cerebral defects underlying various learning disabilities, e.g. cortical heterotopias in dyslexic patients, and temporal lobe cysts in children with auditory perceptual problems. The regional cerebral blow flow abnormalities demonstrated by SPET may reveal focal cerebral dysfunction not demonstrated by MRI but correlating with expressive language dysfunction and other developmental learning disabilities.

SOFT NEUROLOGICAL SIGNS IN MALNOURISHED CHILDREN

The relation of abnormal soft neurologic signs and EEG abnormalities to the severity of malnutrition was investigated in 208, 8-10 year old male school children at the Nutrition Section, Department of Paediatrics, and the Section of Neurology, Department of Medicine, Institute of Medical Sciences, Banaras Hindu University, Varanasi, India. No child had a history of birth anoxia, head injury, or drug ingestion. Seven motor tasks were tested for soft neurologic signs: 1) Finger tapping, 2) successive finger movements, 3) toe tapping, 4) heel toe tapping, 5) repetitive hand patting, 6) alternating hand pronation supination, 7) alternating hand flexion extension. Both dominant and nondominant limbs were evaluated. Choreoathetoid movements were examined as a child walked 20 steps on inverted feet (Fog test). There was a strong correlation between nutritional status and performance of motor tasks in both hands and a progressive increase in abnormalities with increased severity of malnutrition. Of 71 children with normal nutritional status 4.2% were positive for soft neurological signs whereas in 79 children with moderate malnutrition 87.3% were positive for neurological abnormalities and 50% showed a positive Fog test with choreoathetoid movements. The EEG pattern in 16 children with soft neurological signs showed abnormalities in the

form of slow and sharp waves, particularly in the frontal lobe, but also in the parietal and temporal lobes. Motor deficits were more marked on the contralateral side of the EEG abnormality. (Agarwal KN et al. Soft neurological signs and EEG pattern in rural malnourished children. Acta Paediatr Scand Nov 1989; 78:873-878).

COMMENT. The same authors have shown that malnourished children are at risk for depressed cognitive function, learning disabilities, and poor achievement at school. In the present paper they emphasize the occurrence of soft neurologic signs and EEG abnormalities in relation to poor nutrition. The influence of early malnutrition on subsequent behavioral development, learning disabilities, and soft neurologic signs has also been stressed by other authors (Galler JR et al. Pediatr Res 1984; 18:309 and 826). Perhaps the term minimal brain dysfunction (MBD) in relation to hyperactive children with learning disabilities was discarded prematurely in favor of ADHD. The pediatric neurologists role in the diagnosis and treatment of children with behavior and learning disabilities has been usurped to some extent by the increasing interests of the psychologists and developmental pediatricians. The importance of pediatric neurology and the recognition of symptoms and signs of brain dysfunction in these patients should receive more emphasis, and nutrition and diet in nervous system disorders of children is a field for further investigation (Millichap JG. Nutrition, Diet, and Child Behavior. Charles C. Thomas, Springfield 1986).

UTILIZATION BEHAVIOR AND FRONTAL LOBE LESIONS

Utilization behavior was investigated in an adult with an acute behavioral disturbance, memory deficits, and a localized inferior medial bifrontal lesion at the Psychology Department, National Hospital, Queen Square, London; the MRC Applied Psychology Unit, Cambridge; and Department of Neurology, Atkinson Morley's Hospital, Wimbledon; and St. Andrews Hospital, Northampton, UK. Incidental utilization behavior was observed and categorized: 1) Toying, an object manipulated but not in a purposeful way (e.g. picking up a pencil but not using it for any purpose), 2) complex toying, two objects used in a linked way but in an incomplete fashion (e.g. picking up a pencil and using it to move objects), 3) coherent activity, set of actions integrated in a typical fashion (e.g. picking up a pen and paper and writing; picking up a pack of cards and dealing). Utilization behavior occurred when the patient was in conversation with the examiner and also when performing both verbal and nonverbal neuropsychological tests. His WAIS Verbal IQ was 73 and Performance IQ 79. Performance on spatial, perceptual, language, and simple praxic tests was satisfactory in contrast to tasks involving a frontal or long term memory component which were uniformly and severely impaired. The utilization behavior was present in the absence of confusion or dementia. The utilization behavior occurred most frequently in the brief intervals between tasks, and more often when auditory verbal rather than visual motor tasks were being performed. A differentiation